

Applicant: In-Sik Nam, et al.
Serial No.: 10/723,306
Attorney Docket No.: GE-303311

IN THE CLAIMS

Please amend claims 1, 9, 12, 22, 29-31, 33 and 34 as follows.

1. (Currently amended) A catalyst prepared by:

providing a zeolite carrier;

providing a cupric salt aqueous solution; and

defining a copper zeolite catalyst by carrying out an ion exchange reaction between copper ions and said zeolite carrier in said cupric salt aqueous solution at a temperature of from about 4°C to about ~~25°C~~ 14°C.

2. (Original) The catalyst of claim 1 wherein said zeolite catalyst carrier has a silicon/aluminum mole ratio of from about 14 to about 95.

3. (Original) The catalyst of claim 1 wherein said copper zeolite catalyst comprises a copper content of from about 0.1% to about 10% by weight.

4. (Original) The catalyst of claim 3 wherein said zeolite carrier has a silicon/aluminum mole ratio of from about 14 to about 95.

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5. (Original)The catalyst of claim 1 wherein said defining a copper zeolite catalyst further comprises the step of calcining said copper zeolite catalyst at a temperature of from about 300°C to about 700°C.

6. (Original)The catalyst of claim 5 wherein said zeolite carrier has a silicon/aluminum ratio of from about 14 to about 95.

7. (Original)The catalyst of claim 5 wherein said copper zeolite catalyst comprises a copper content of from about 0.1% to about 10.0% by weight.

8. (Original)The catalyst of claim 7 wherein said zeolite carrier has a silicon/aluminum mole ratio of from about 14 to about 95.

9. (Currently amended) A catalyst prepared by:
providing a zeolite carrier having a silicon/aluminum mole ratio of from about 14 to about 30;
providing a cupric salt aqueous solution having a concentration of from about 0.001 molar to about 10 molar;
defining a copper zeolite catalyst by carrying out an ion exchange reaction between copper ions and said

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zeolite carrier in said cupric salt aqueous solution at a

temperature of from about 4°C to about ~~25°C~~ 14°C; and

calcinating said copper zeolite catalyst at a

temperature of from about ~~300°C~~ 550°C to about 700°C.

10. (Original)The catalyst of claim 9 wherein said cupric salt aqueous solution is copper sulfate, copper nitrate, copper acetate or copper chloride.

11. (Original)The catalyst of claim 9 wherein said copper zeolite catalyst comprises a copper content of from about 2.5% to about 3.5% by weight.

12. (Currently amended) A process for preparing a catalyst, comprising the steps of:

providing a zeolite carrier;

providing a cupric salt aqueous solution;

defining a copper zeolite catalyst by carrying out an ion exchange reaction between copper ions and said zeolite carrier in said cupric salt aqueous solution at a temperature of from about 4°C to about ~~25°C~~ 14°C; and

calcinating said copper zeolite catalyst.

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13. (Original)The process of claim 12 wherein said zeolite carrier has a silicon/aluminum mole ratio of from about 14 to about 95.

14. (Original)The process of claim 12 wherein said copper zeolite catalyst comprises a copper content of from about 0.18 to about 10.0% by weight.

15. (Original)The process of claim 14 wherein said zeolite carrier has a silicon/aluminum mole ratio of from about 14 to about 95.

16. (Original)The process of claim 12 wherein said calcining said copper zeolite catalyst comprises calcining said copper zeolite catalyst at a temperature of from about 300°C to about 700°C.

17. (Original)The process of claim 16 wherein said zeolite carrier has a silicon/aluminum mole ratio of from about 14 to about 95.

18. (Original)The process of claim 16 wherein said copper zeolite catalyst comprises a copper content of from about 0.1% to about 10.0% by weight.

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19. (Original) The process of claim 12 wherein said cupric salt aqueous solution is copper sulfate, copper nitrate, copper acetate or copper chloride having a concentration of from about 0.001 molar to about 10 molar.

20. (Original) The process of claim 19 wherein said zeolite carrier has a silicon/aluminum mole ratio of from about 14 to about 95.

21. (Original) The process of claim 19 wherein said calcining said copper zeolite catalyst comprises calcining said copper zeolite catalyst at a temperature of from about 300°C to about 700°C.

22. (Currently amended) A process for removing nitrogen oxides from a gaseous medium, comprising the steps of:

providing a catalyst prepared by providing a cupric salt aqueous solution, providing a zeolite carrier, and causing an ion exchange reaction between copper ions and said zeolite carrier in said cupric salt aqueous solution at a temperature of from about 4°C to about 25°C-14°C;

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defining a gaseous mixture by providing a reducing agent and mixing said reducing agent with said gaseous medium; and

passing said gaseous mixture through said catalyst.

23. (Original)The process of claim 22 wherein said reducing agent is ammonia or urea.

24. (Original)The process of claim 22 wherein said cupric salt aqueous solution is copper sulfate, copper nitrate, copper acetate or copper chloride having a concentration of from about 0.001 to about 10 molar.

25. (Original)The process of claim 22 wherein said zeolite carrier has a silicon/aluminum ratio of from about 14 to about 95.

26. (Original)The process of claim 22 wherein said catalyst has a copper content of from about 0.1% to about 10.0% by weight.

27. (Original)The process of claim 22 wherein said catalyst is prepared by further calcining said catalyst at a temperature of from about 300°C to about 700°C.

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28. (Original) The process of claim 22 wherein said passing said gaseous mixture through said catalyst comprises passing said gaseous mixture through said catalyst at a temperature of from about 150°C to about 500°C and a spatial velocity of from about 100 hr⁻¹ to about 400,000 hr⁻¹.

29. (Currently amended) A copper zeolite catalyst comprising:

a zeolite carrier having a silicon/aluminum mole ratio of from about ~~44~~ 31 to about 95; and

copper provided on said zeolite carrier in a quantity of from about ~~0.1%~~ 5.3% to about 10.0% by weight.

30. (Currently amended) The copper zeolite catalyst of claim 29 wherein said zeolite carrier has a silicon/aluminum mole ratio of from about ~~44~~ 31 to about 30 50.

31. (Currently amended) The copper zeolite catalyst of claim 29 wherein said copper is provided on said zeolite carrier in a quantity of from about ~~2.5%~~ 6.0% to about ~~3.5%~~ 8.0% by weight.

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32. (Original) The copper zeolite catalyst of claim 31
wherein said zeolite carrier has a silicon/aluminum mole
ratio of from about 14 to about 30.

33. (Currently amended) A zeolite carrier comprising a
silicon/aluminum mole ratio of from about ~~14~~ 31 to about 95
and copper provided on said zeolite carrier in a quantity
of at least about 5.3%.

34. (Currently amended) The zeolite carrier of claim
33 wherein said silicon/aluminum mole ratio is from about
~~14~~ 31 to about ~~30~~ 40.